

# **WASTE TO ENERGY FORUM**

**April 6, 2010**

**2:00 pm – 5:00 pm**

## **I. Welcome and Introductions**

What Brought You to the Meeting? (understanding the viewpoints of the participants)

## **II. Meeting Purpose/Agenda Review/Process for Stakeholder Input-**

## **III. What Brought You to the Meeting? (understanding the viewpoints of the participants)- Roundtable Discussion**

## **IV. Virginia DEQ's Interest and Progress to Promote WTE- Presentation by Jeff Steers, VADEQ**

## **V. Alternate Energy Facility Permitting: Perception and Science- Presentation by Richard Hergenroeder, COVANTA Energy**

## **VI. Exploring Priorities in Technology and Fuel Types, Is There a One Size Fits All Regulatory Approach? How Can Virginia Better Promote Waste to Energy Through Regulatory Flexibility- Group Discussion**

## **VII. What Is Virginia Currently Planning to Address Regulatory Flexibility?**

a) DEQ's Renewable Energy Permit by Rule for Combustion-Based Projects- Presentation by Carol Wampler, VADEQ

b) General Air Permit for Biomass, Presentation by Beth Major, VADEQ

## **VIII. Process for Improving the Communication of**

a) regulatory Requirements to New and Existing Enterprises

b) issues to the general public/dealing with NIMBY

## **IX. Path Moving Forward**

NOTES FROM THE WASTE TO ENERGY DEQ STAKEHOLDER MEETING  
LEXINGTON VIRGINIA  
APRIL 6, 2010

After hearing some brief presentations (see attached), the following input (not in order of priority) was provided by the meeting participants:

- 1) DEQ and the agricultural community involved in biomass projects need to work together to better understand and communicate air quality requirements. There is limited data available to understand the emissions from use of agricultural fuel (poultry litter, other animal waste etc.) Ag community needs more outreach in understanding air quality permitting requirements
- 2) In order to promote WTE the Department needs to improve its consistency and timeliness in permitting and compliance. There appears to be a disconnect between the regional staff in these programs. Information is put into the record that some feel is not reflective of the actual situation occurring at a facility.
- 3) In order for WTE to succeed, projects need to be discussed early in the process and should be done in the regions with a single point of contact. This single point should be across all media.
- 4) As air permitting criteria for biomass and other WTE is developed further, the DEQ needs to communicate requirements and criteria for major and minor sources and should consider reduced permit fees for renewable energy projects.
- 5) Timeliness is a huge issue when proposed projects are brought to the Department. Proposed projects and business decisions are time critical, lost opportunities result in the Department's delay in permitting or even in giving guidance on how a facility must be permitted.
- 6) Rely more on a company's Professional Engineer's review and approval of engineering plans, don't repeat reviews. Need more boilerplate language in permits to make them more understandable.
- 7) A clear policy and statement of support for WTE from the Governor will help drive projects in the Commonwealth.
- 8) The regional offices should have a WTE specific coordinator that understands all air/water/waste permitting requirements and to help facilitate discussion on proposed projects.
- 9) DEQ needs to use it's web site for more online resources that can describe the requirements for different types of WTE projects.

10) The Commonwealth and WTE stakeholders need to have a meeting of the minds and develop a strategy to address the Not In My BackYard (NIMBY) attitudes that prevail in communities where proposed facilities are being planned. No matter how good a permit program DEQ has, it is oftentimes not enough to combat the local government/neighbors' perception that restricts rezoning and special use permit problems. A strategy is needed to engage local communities in addressing their legitimate concerns and to dispel myths and falsehoods.

11) Successful projects need to be widely publicized and promoted throughout the state so that the public and local government can see the benefits of WTE.

12) Keep in mind as discussion and regulatory drivers are developed for WTE that the end goals are a cleaner environment with having energy independence that result from such projects.

13) Solid waste management plans must have recycling rates. Is recycling better than WTE? The Commonwealth should consider a similar mandate for WTE requirements in these plans. Perhaps a change in statute is necessary. Some believe WTE is a form of recycling and should be counted. Not necessarily a consensus issue however.

14) While DEQ is engaged in social media such as Twitter and Facebook, it can do more to use these avenues to promote WTE.

15) The Biomass General Permit being developed is a good start in promoting a streamlined method to help jump start projects. However, the Department needs to do more with this and advance other creative permitting and exemptions for such projects.

Prior to the conclusion of the meeting, those in attendance were encouraged to participate in future meetings or on specific topics or advisory groups. The minutes of the meeting will be posted on DEQ's web page. The Department is maintaining a contact list of all those interested in this topic, including those attending today's meeting.

Waste to Energy Meeting  
April 6, 2010

Waste To Energy Meeting - Tuesday, April 6, 2010						
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# **WASTE TO ENERGY PROMOTING WHILE PROTECTING**

How Do We Advance the  
Technology Throughout  
the Commonwealth

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# Past Present and Future of WTE

- Virginia Currently Produces an Aggregate Capacity 8,280,541 MWh From WTE Operations
- Permitting Strikepoints Involved All Media, but Primarily Air Quality
- Little Flexibility in Permit Requirements and Regulatory Responsibilities, Oftentimes Federally Driven

# Expanding the Portfolio of WTE Technologies

- incineration\combustion,
- gasification,
- pyrolysis,
- advanced combustion,
- plasma arc,
- anaerobic digestion or composting, hydrolysis,
- catalytic cracking,

# Expanding Fuel Types to Solve Other Environmental Challenges

- MSW,
- waste wood (treetops, sawdust, lumber scrap),
- construction and demolition debris (CDD),
- waste tire and tire derived fuel (TDF),
- sewage sludge,
- animal\feedlot waste,
- refuse derived fuel (RDF),
- solvent derived fuel,
- landfill methane

# Current and Planned Regulatory Work

- Review of Materials Recovery Facilities and applicability to WTE Facilities
- General Air Permit for Biomass
- Renewable Energy Permit by Rule

# Possible Renewable Energy Permit by Rule

2009 Virginia statute:

DEQ shall develop PBR's for . . .

“biomass, energy from waste, or  
municipal solid waste” projects <20 MW

# General Permit for Biomass

- General Assembly Legislation 2008  
Section 10.1-1308.1
- Expedited process for air permitting qualified energy generators (QEGs) that use biomass

# General Permit for Biomass

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Mary E. Major

DEQ

Office of Regulatory Affairs

# General Assembly Legislation 2008

## Section 10.1-1308.1

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- ❑ Expedited process for permitting qualified energy generators (QEGs) that use biomass
- ❑ Not applicable to any QEG subject to major new source review; Section 110(a)(2)(C) of the CAA

# Legislative Definitions

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## □ Biomass:

- Forest-related materials
- Agricultural-related materials
- Animal waste
- Solid woody waste
- Crops and trees planted to produce energy
- Landfill gas, wastewater treatment gas, biosolids, including organic waste byproducts generated during the wastewater treatment process
- Municipal solid waste; excluding tires and medical and hazardous waste



# Legislative Definitions

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- Expedited process:
  - Fee no more than \$50
  - Final permit action 60 days after receipt of completed application

# Legislative Definitions

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- Qualified energy generator:
  - Commercial facility
  - With the *capacity annually to generate no more than five megawatts of electricity* or produce the equivalent amount of energy in the form of fuel, steam, or other energy product, that is generated or produced from biomass, and is sold to an unrelated person or used in a manufacturing process.

# General Permit Regulation Development

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- TAC formed: meetings since August
- Obstacles:
  - No emission factors for most of materials identified as biomass
  - Need emissions limits to write general permit
  - Phrase “*capacity annually to generate no more than five megawatts of electricity*” is difficult to interpret



# Regulation Development

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- ❑ Operating schedule
- ❑ Compliance determination and verification by emission testing
- ❑ Recordkeeping requirements
- ❑ Reporting requirements
- ❑ Compliance
- ❑ Enforcement

# Regulation: Pilot Test Facility

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- Allows 18 months to construction
- Allows 12 months to conduct testing
- Test results will be compared to permitting emission thresholds
  - PM 25 tpy
  - PM 10 15 tpy
  - PM 2.5 10 tpy
  - NO<sub>x</sub> 40 tpy
  - SO<sub>2</sub> 40 tpy
  - CO 100 tpy
  - VOC 40 tpy



# Examples of Unresolved Issues

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- How to ensure source is not major
- Emissions above threshold values:
  - Continue to operate until permit is issued?
  - Required to shutdown?
- Once facility is permitted and wants to switch fuel do they meet original threshold values or are they a modified source?
- What is the proper opacity limit?



# Follow Process on Townhall

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□ <http://townhall.virginia.gov/>



## Meetings and public hearings

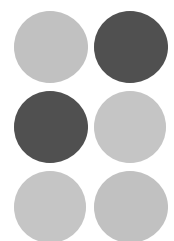
The Town Hall includes all public meetings addressing regulatory policy, including public hearings on proposed regulations. Public meetings not pertaining to regulations can be found on Virginia's **Commonwealth Calendar** website.

[Filter Options](#)

Currently showing: 1743 meetings that have taken place in the past 365 days

Show meetings scheduled for  
[Today](#) [Next Week](#) [Next Month](#) [Future](#)  
[Last Week](#) [Past 30 days](#) [Past year](#)

Date	Board	Meeting Title
01-Apr-09 (Wed)	Board for Contractors	<b><u>Informal Fact-Finding Conference for the Recovery Fund</u></b> [Minutes]
01-Apr-09 (Wed)	Board of Long-Term Care Administrators	<b><u>Informal Conference</u></b> [Minutes]
01-Apr-09 (Wed)	State Board of Health	<b><u>Sewage Handling and Disposal Appeals Review Board</u></b>
01-Apr-09 (Wed)	Virginia Outdoors Foundation	<b><u>Preservation Trust Fund Committee</u></b>
01-Apr-09 (Wed)	Virginia Outdoors Foundation	<b><u>Quarterly Meeting of VOF Board of Trustees</u></b> [Agenda] [Minutes]
01-Apr-09 (Wed)	Real Estate Board	<b><u>Informal Fact-Finding Conference - Disciplinary</u></b> [Minutes]
02-Apr-09 (Thu)	Virginia Outdoors Foundation	<b><u>Quarterly Meeting of VOF Board of Trustees</u></b>



# **DEQ's Renewable Energy Permit by Rule for Combustion-Based Projects**

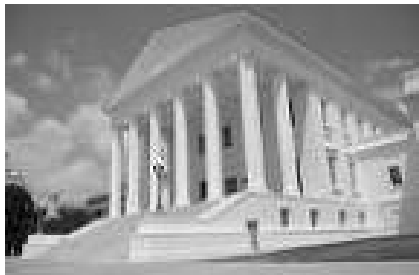
Carol C. Wampler  
Virginia Department of Environmental Quality  
For  
Pre-Conference Workshop  
WASTE TO ENERGY  
Environment Virginia  
April 6, 2010





VIRGINIA ACTS OF  
ASSEMBLY -- 2009  
RECONVENED SESSION  
CHAPTERS 808 & 854

Virginia General Assembly  
**“Small Renewable Energy  
Projects” Legislation**  
HB 2175 & SB 1347  
**Approved: April 8, 2009**





Directs DEQ to develop  
by regulations

**“permits by rule . . . for the  
construction and operation of  
small renewable energy projects,**

**including such conditions and  
standards necessary to protect  
the Commonwealth’s natural  
resources”**



## Statutory Goals:

- ⌘ **Promote renewable energy** – provide certainty, timeliness, reasonable regulatory requirements
- ⌘ **Protect natural resources** – provide enforceable standards that are protective of wildlife & historic resources at/near project site



What is a  
**“small renewable energy project”?**



An electrical generation facility  
producing electricity from . . .

✿ biomass

✿ energy from waste < 20 MW

✿ municipal solid waste





# Statutory Deadline

For Biomass, Energy from Waste,  
& Municipal from Solid Waste  
Projects:

**JULY 1, 2012**



# New System (replacing SCC system):

- ⌘ Developer applies to DEQ for permit by rule (PBR)
- ⌘ Environmental requirements are set forth “up front” in regulation for all sites
- ⌘ DEQ, in consultation with other agencies, reviews application
- ⌘ If applicant meets requirements and submits required certifications, then DEQ notifies applicant that he is covered by the permit by rule.



Note . . .

- ⌘ *Neither existing SCC approach nor DEQ's new PBR approach abrogates applicant's need to obtain state regulatory environmental permits.*



# **WHAT IS THIS “PERMIT BY RULE”?**





# A Permit by Rule (PBR) for solid waste is . .

- ⌘ Expedited permitting process used by DEQ for certain solid waste facilities
- ⌘ Regulation stating “up front” the criteria that applicant must meet
- ⌘ Requirement that applicant submit docs/certification that has met requirements
- ⌘ Requirement that DEQ review submission for completeness & adherence to reg
- ⌘ If complete, then DEQ notifies that facility is authorized under a PBR



A Permit by Rule is **not** . . .

- ✚ An individual permit
- ✚ Site-specific
- ✚ Based on a case-by-case technical analysis



In developing  
the renewable-energy PBR's,  
DEQ staff adheres to the  
solid-waste PBR model  
as fully as is practicable.



So how should DEQ draft permits by rule for renewable-energy projects?



**Combustion**  
**Regulatory Advisory Panel**  
**(RAP)**  
**will be convened**  
**in 2011**



# **Regulatory Advisory Panel** **(RAP)**

## **Stakeholders will come from:**

- ⌘ **State Government**
- ⌘ **Industry**
- ⌘ **Environmental Organizations**
- ⌘ **Academia**
- ⌘ **Local Government**
- ⌘ **Other**



# WATCH FOR . . .

Notice of Intended Regulatory Action  
(NOIRA)

Notice of Opportunity to Serve  
on RAP



***What parts of the  
2009 renewable energy  
statute  
apply to  
waste-to-energy projects?***



# Operative Statutory Provisions:

*10.1-1197.6.A DEQ authority over*

**CONSTRUCTION**

and

**OPERATION**

*of*

*small renewable energy projects*



# But note – Phases of a Project:

- ⌘ *Siting*
- ⌘ **CONSTRUCTION**
- ⌘ **OPERATION**
- ⌘ *Decommissioning*



# PBR Criteria

10.1-1197.6.B

- ⌘ Notice of intent
- ⌘ Local-government certification
- ⌘ Interconnection studies
- ⌘ Final interconnection agreement
- ⌘ PE certification of generation capacity
- ⌘ **Analysis of impacts on NAAQS**



# PBR Criteria (continued)

- ⌘ **Analysis of impact on natural resources**
- ⌘ **Determination of likely significant adverse impacts; mitigation plan**
- ⌘ PE certification of design
- ⌘ Operating plan
- ⌘ Site plan
- ⌘ Certification re environmental permits
- ⌘ Public meeting
- ⌘ Public comment period



# *DEQ's Operative Provisions* *10-1:1197.6.B.7:*

*Applicant shall provide*  
“an **ANALYSIS** of the beneficial and  
adverse impacts of the proposed project  
on  
**NATURAL RESOURCES**”



# Operative provisions (continued)

## 10.1-1197.6.B.8:

- (1) **Department determines**  
if foregoing analysis  
“indicates that  
**significant adverse impacts**  
to **wildlife**  
or **historic resources**  
are **likely**”



*If so, then . . .*

**(2)**

 **MITIGATION PLAN**

 **MEASURE EFFICACY**

***(post-construction monitoring)***



# Questions for the RAP:

- ⌘ Does there need to be a renewable energy PBR for combustion projects (biomass, energy from waste, municipal solid waste)?
- ⌘ If so, what provisions should the PBR include?



*We look forward to your working  
with DEQ  
on the renewable-energy PBR  
for waste-to-energy and  
other combustion-based  
projects  
in 2011.*



For further information . . .

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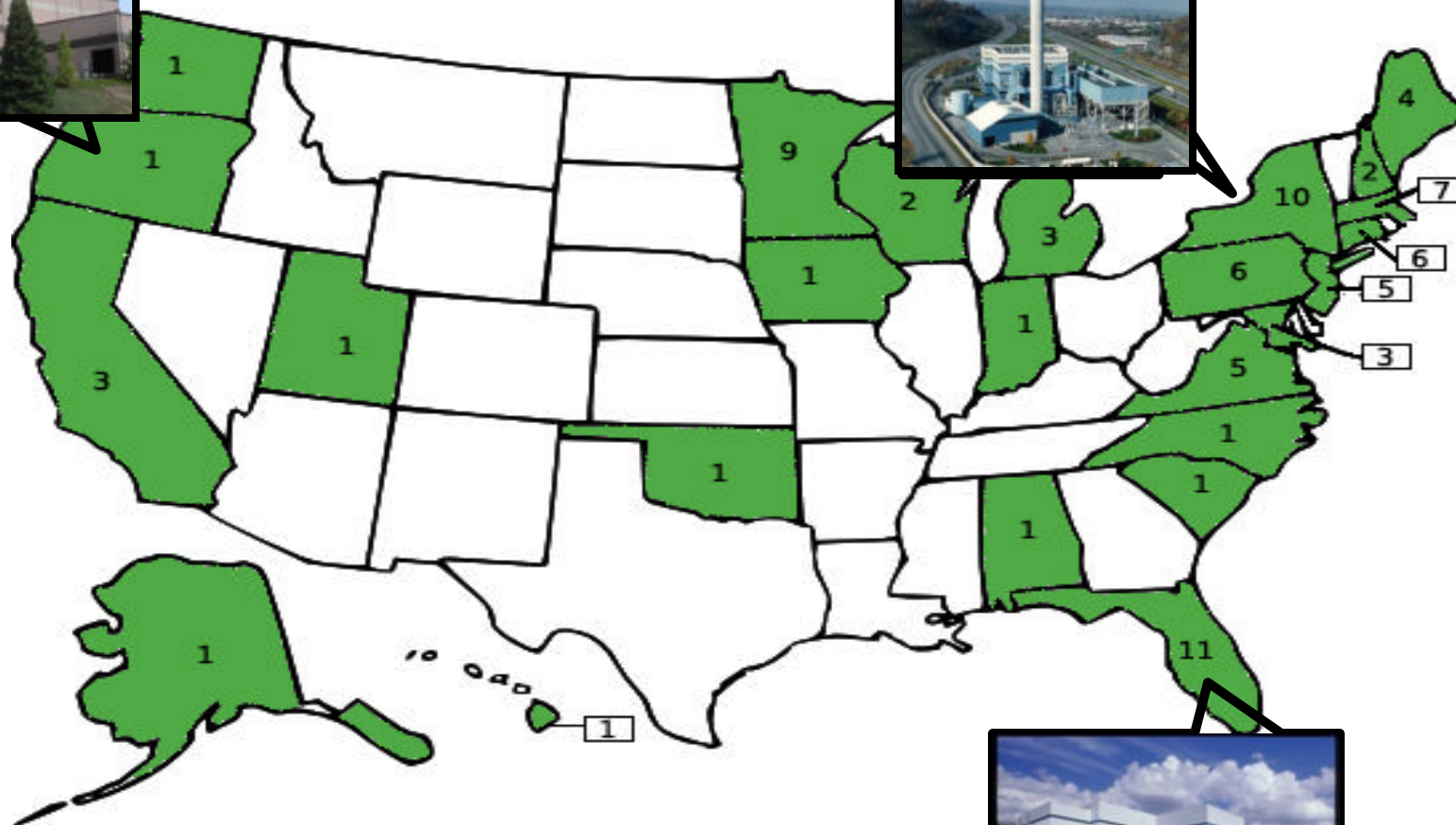


# Alternate Energy Facility Permitting: Perception and Science

Richard Hergenroeder, April 2010

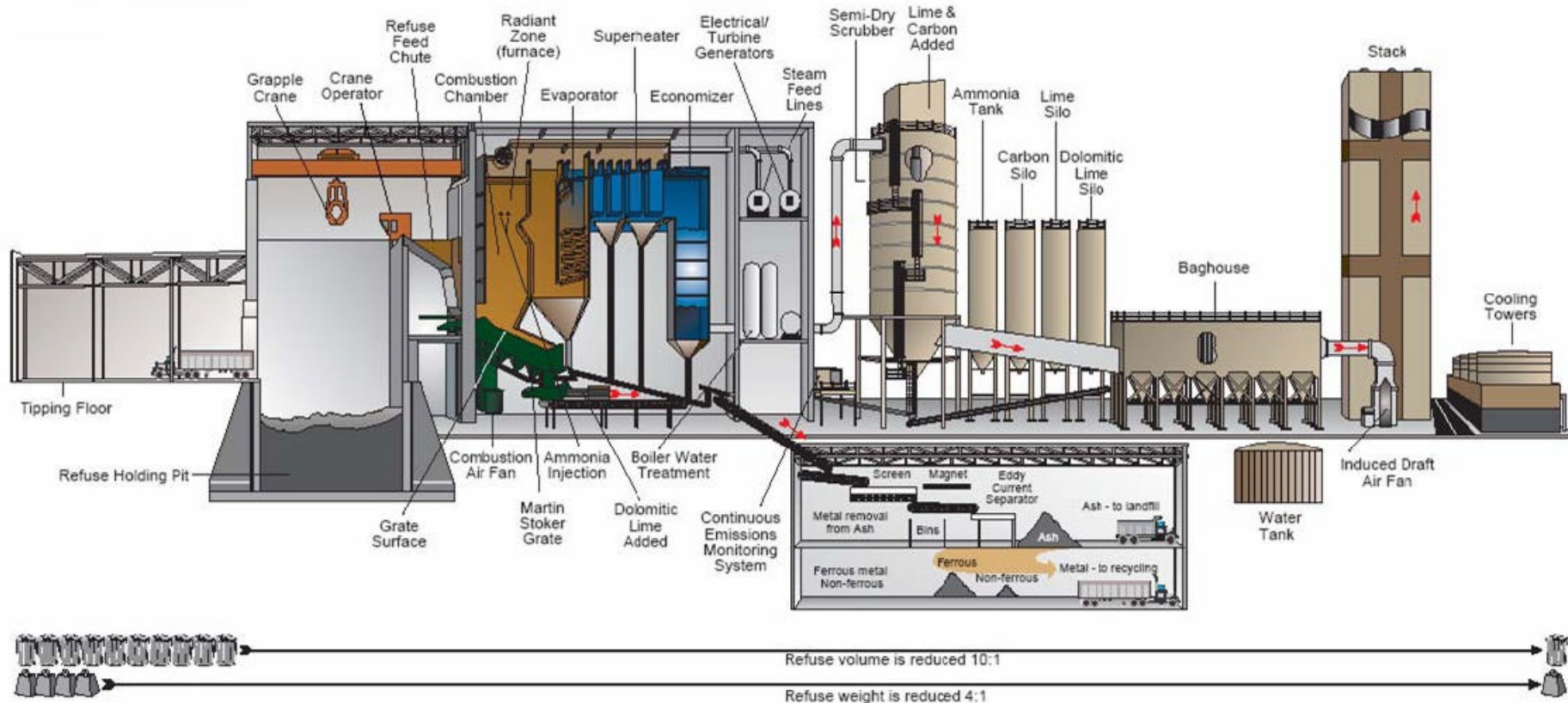


## 86 Facilities Nationally





# Modern Energy-from-Waste







**Covanta Alexandria, VA**



## Ferrous Recovery





## Nonferrous Recovery





**EfW as an alternate energy source**

**Greenhouse gas**

**Air emissions**

**Wastewater**

**Land use**

**Safety**

**Community Affairs**

**EfW in other countries and Virginia**



## EfW as an Alternate Energy Source

Figure 1. Non-fossil energy use grows rapidly, but fossil fuels still provide 78 percent of total energy use in 2035

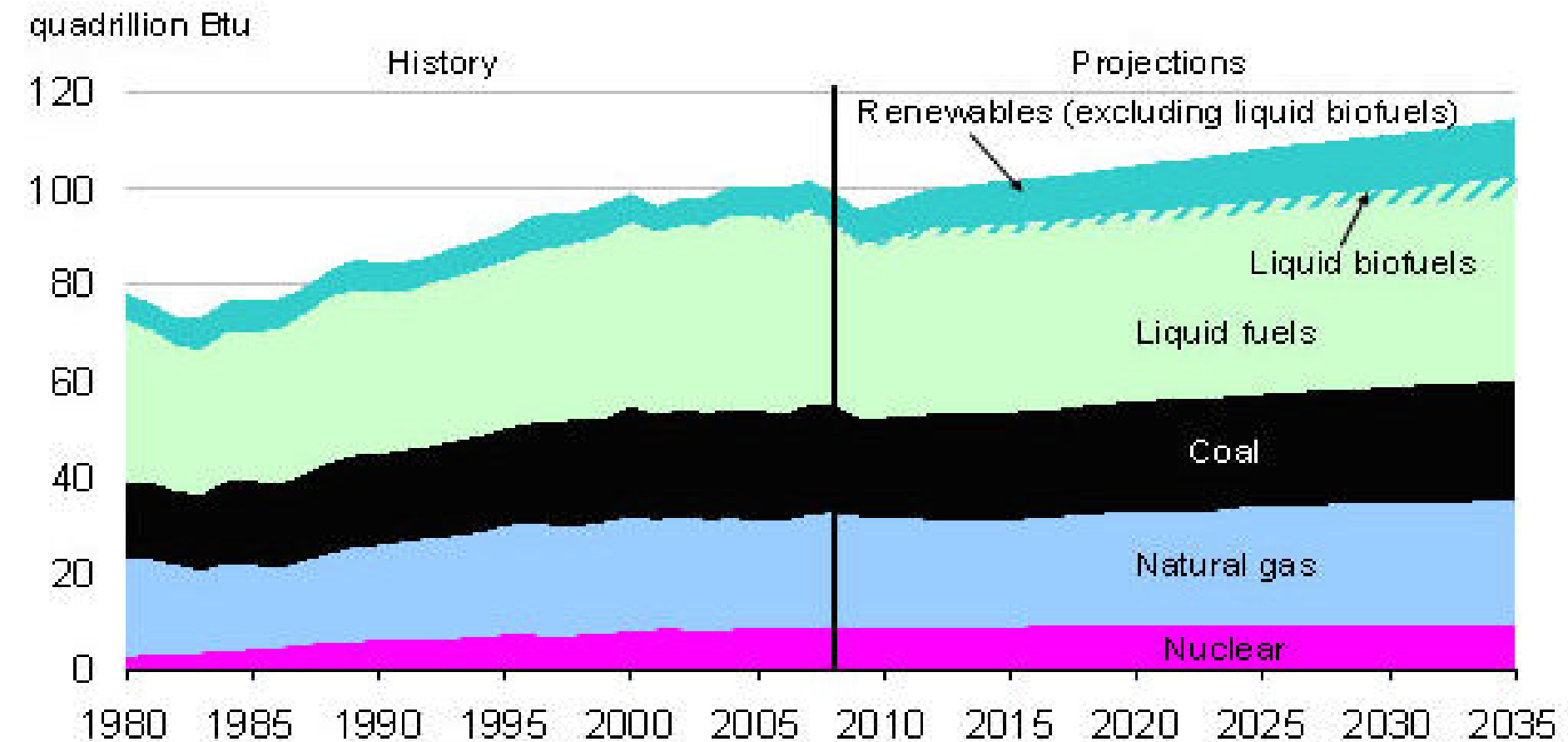
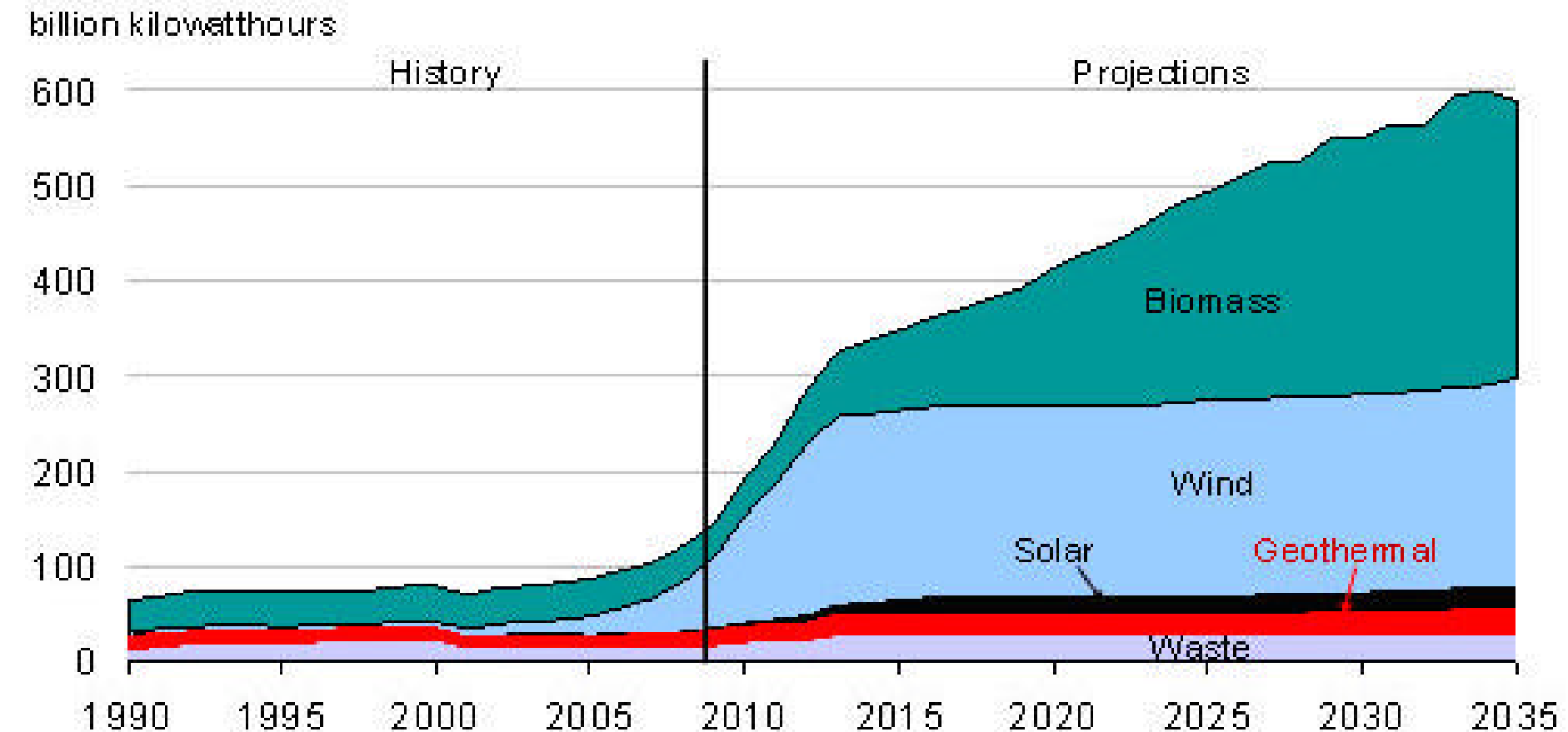


Figure 5. Nonhydropower renewable sources meet 41% of total electricity generation growth from 2008 to 2035

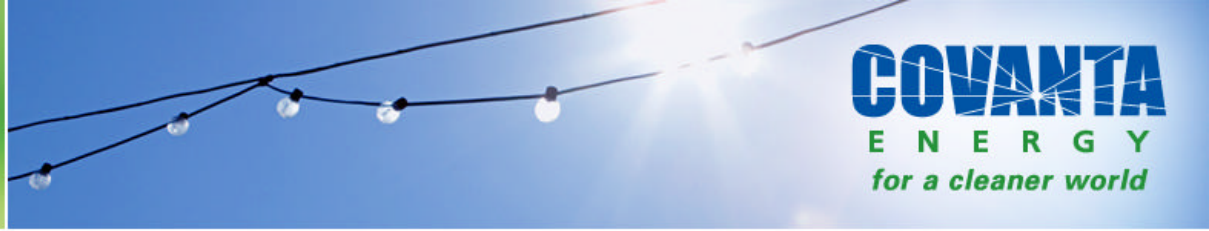




## Renewable Energy

- U.S. EPA states that Energy-from-Waste “produces electricity with less environmental impact than almost any other source”
- 25 States and the federal government defined EfW as renewable
- EfW Produces 750kWh per ton while landfill gas will only produce a mere 65 kWh per ton
- EfW compliments other renewable sources – 24/7
- Fewer fossil fuels burned: 1 ton of waste ~ ¼ ton of coal or ~ 1 barrel of oil

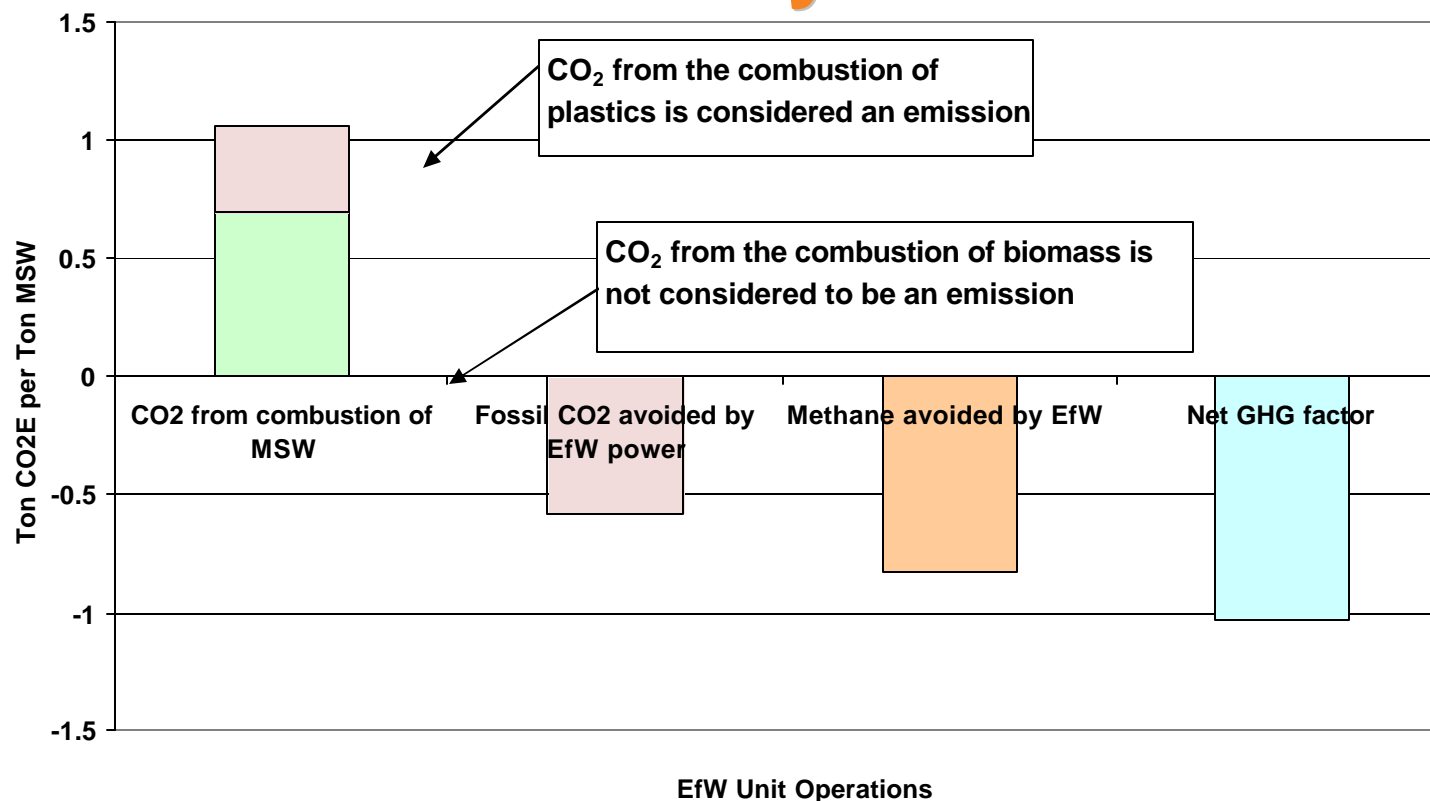




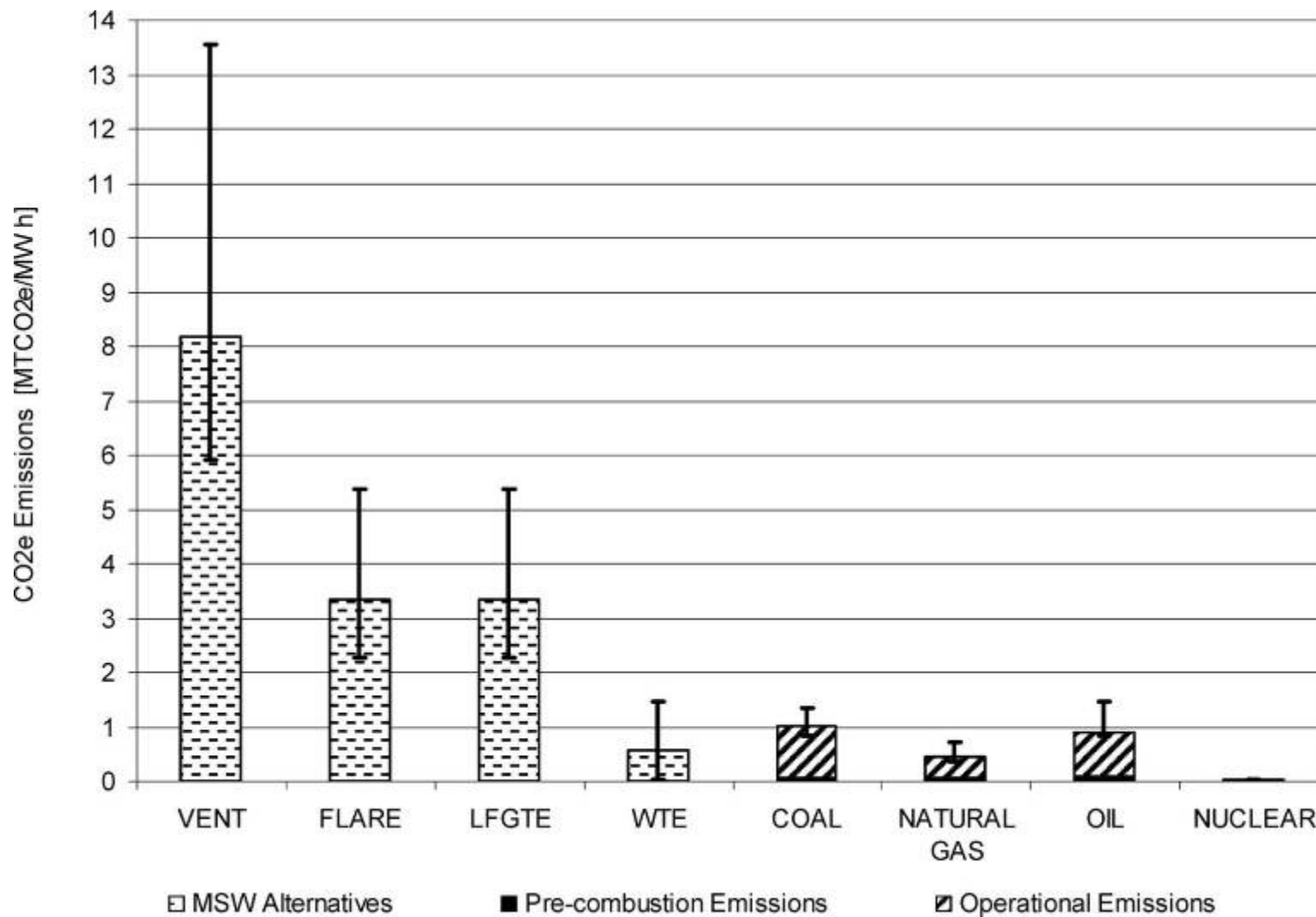
# Greenhouse Gas



# EfW & Sustainability: Reduces GHG's



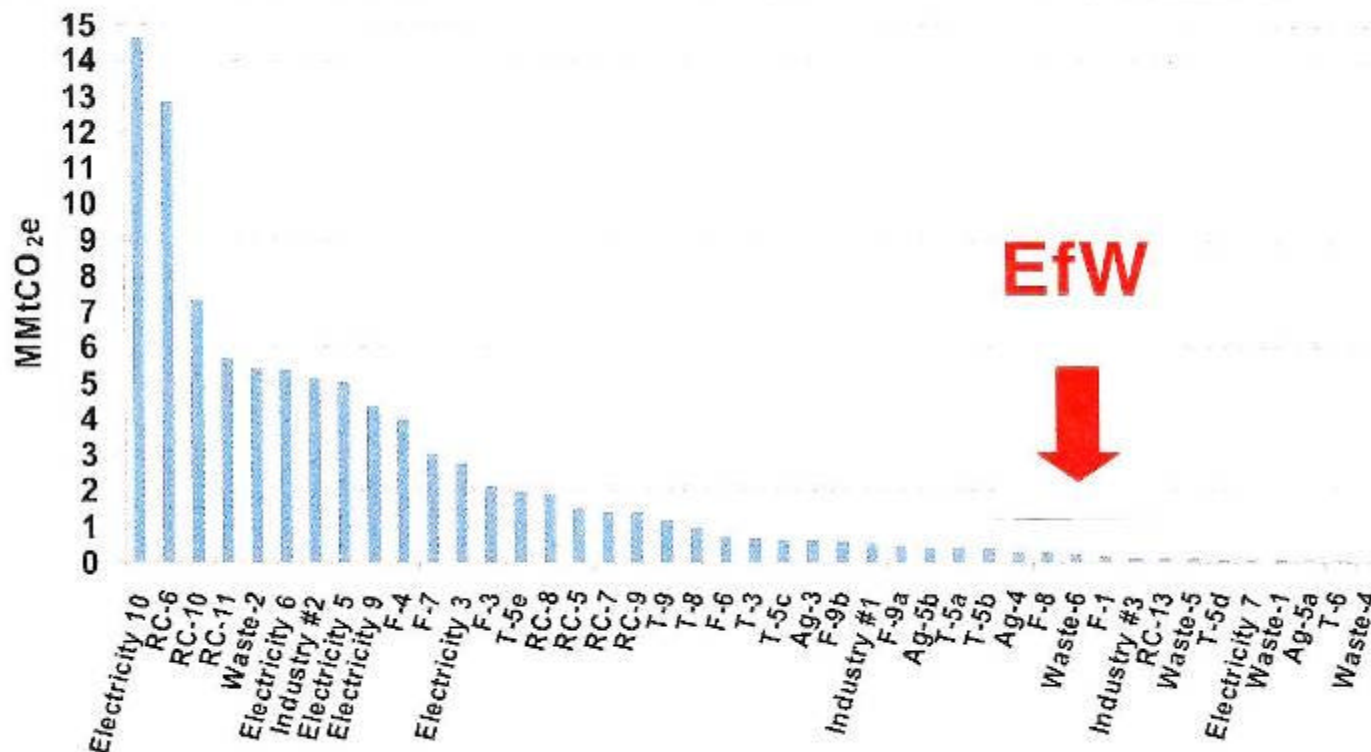
***EfW is a proven GHG mitigation technology.***





# Pennsylvania Climate Action Plan

Figure ExS-3. Work Plan Recommendations Ranked by 2020 GHG Reduction Potential After Adjusting for Overlaps



GHG = greenhouse gas; MMtCO<sub>2</sub>e = million metric tons of carbon dioxide equivalent; Ag = agriculture; RC = residential commercial; F = forestry; T = land use and transportation.

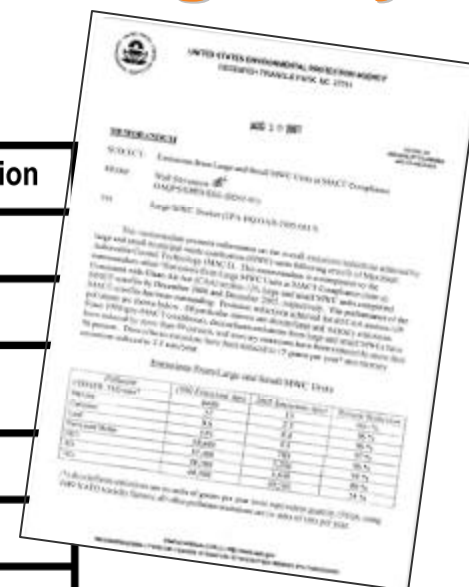


## Air Emissions



# Energy-from-Waste Has Come a Long Way

Pollutant	1990 Emissions (tpy)	2005 Emissions (tpy)	Percent Reduction
CDD/CDF, TEQ basis*	4400	15	99+%
Mercury	57	2.3	96%
Cadmium	9.6	0.4	96%
Lead	170	5.5	97%
Particulate Matter	18,600	780	96%
HC1	57,400	3,200	94%
SO <sub>2</sub>	38,300	4,600	88%
NO <sub>x</sub>	64,900	49,500	24%

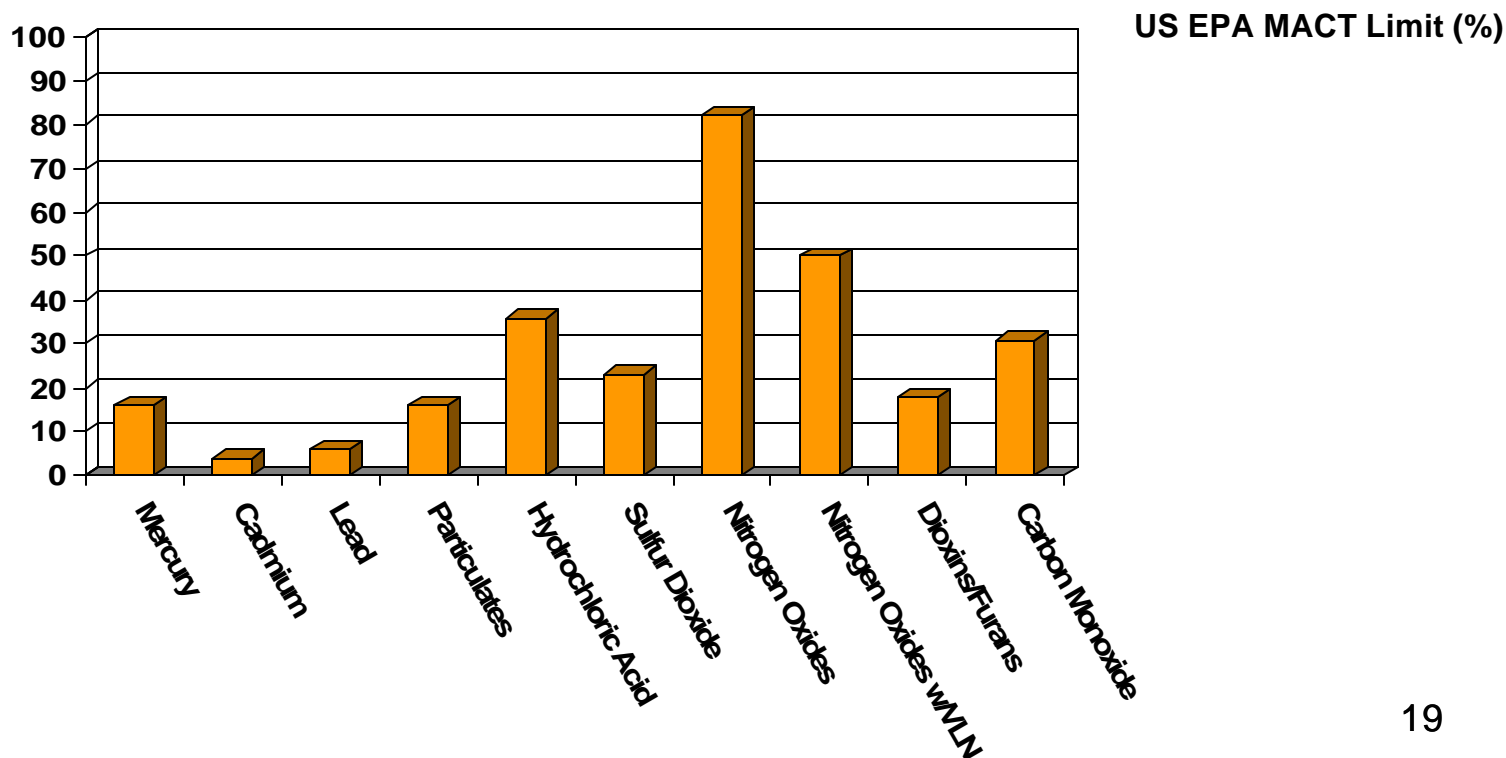


**"The performance of the MACT retrofits have been outstanding."**



## Superior Performance Record

Demonstrating our ongoing commitment to the environment, our Energy-from-Waste facilities operate with average emissions levels (as a percentage) far below U.S. EPA permitted limits:

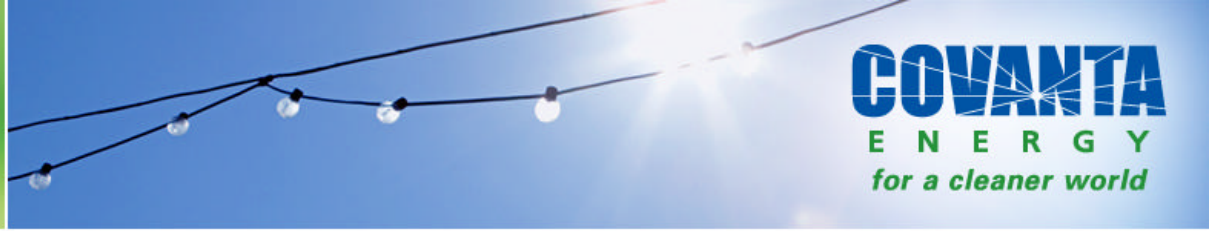




## Alexandria City Council Docket

### October 27, 2009

*“This energy-from-waste facility is a “green” and environmentally positive technology, as it not only produces electricity, but also avoids long distance hauling and land filling of municipal solid waste.”*



## Land Use

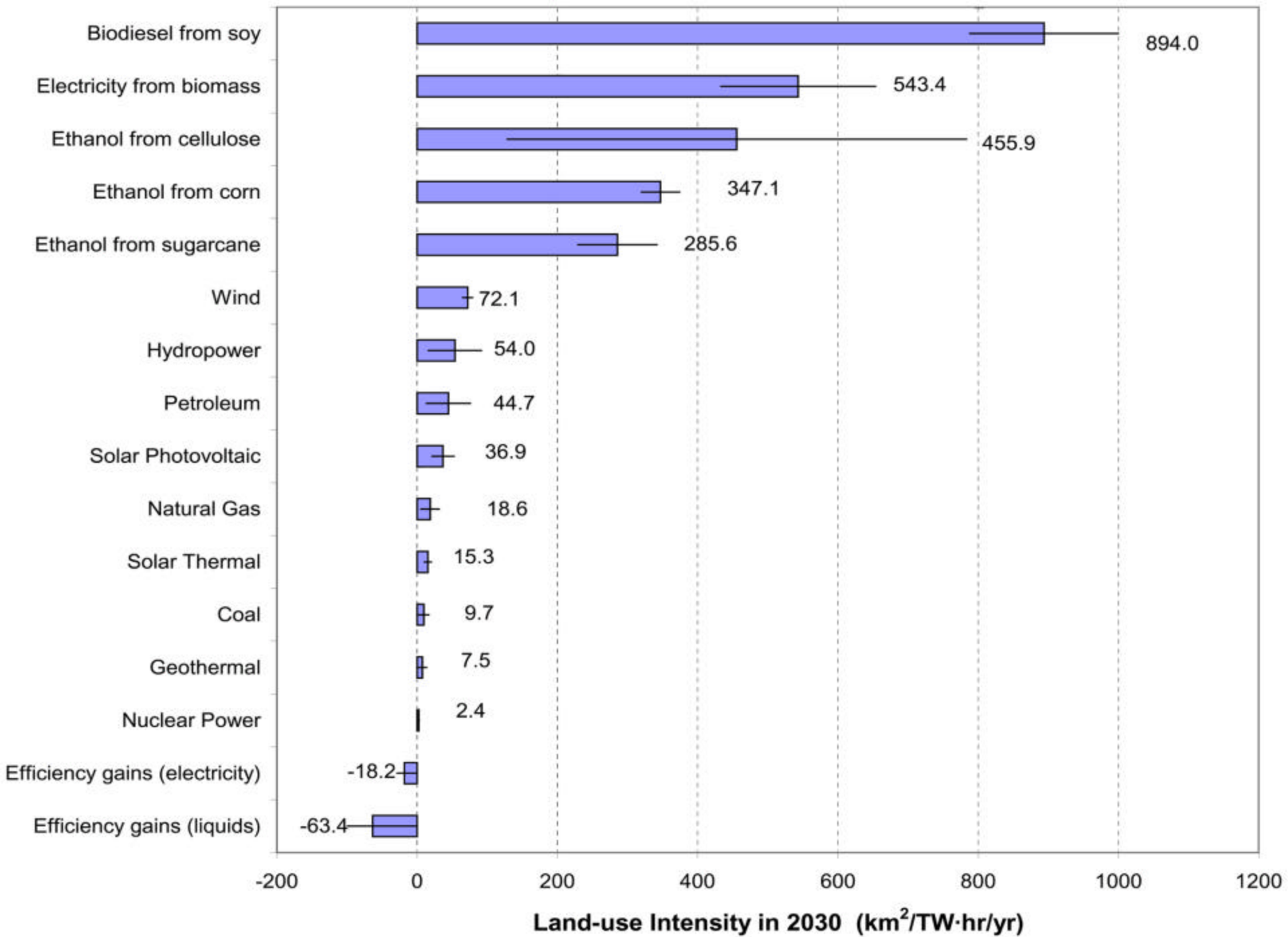


## Energy Sprawl

***Energy Sprawl or Energy Efficiency: Climate Policy Impacts on Natural Habitat for the United States of America.***

**Robert I. McDonald, Joseph Fargione, Joe Kiesecker, William M. Miller, Jimmie Powell.**

**<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0006802>**





# Wastewater



# Safety



**Voluntary Protection Programs**  
An OSHA Cooperative Program



## Covanta STEP-UP Program

***"Safety Today and Every day is Paramount  
- Unleash the Power!"***





## Community Affairs



## Nationwide

- Mercury thermostats
- Household pharmaceuticals
- International Coastal Cleanup
- Fishing for Energy
- Earth day



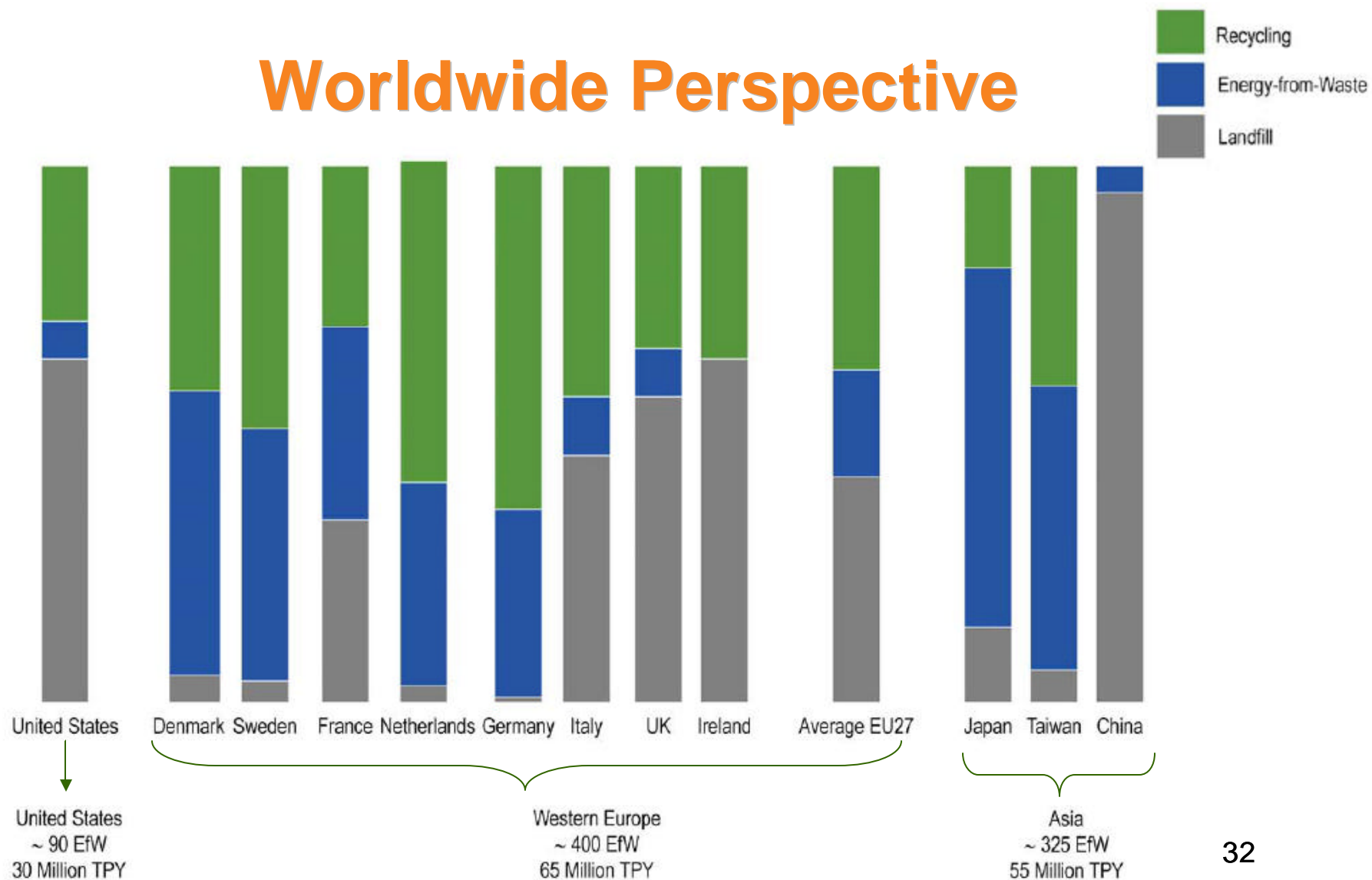
## Local Community Affairs/Relations



## EfW in Other Countries and Virginia



## Worldwide Perspective





## EfW in Virginia

Facility Name	TPD	Energy Capacity
Alexandria/Arlington Resource Recovery Facility	975	24 MW
Hampton-NASA Steam Plant	240	66,000 Lbs/Hr
Harrisonburg Resource Recovery Facility	200	43,000 Lbs/Hr 2.5 MW
I-95 Energy-Resource Recovery Facility (Fairfax)	3000	79 MW
Southeastern Public Service Authority of Virginia	2000	25,000 Lbs/Hr 50 MW

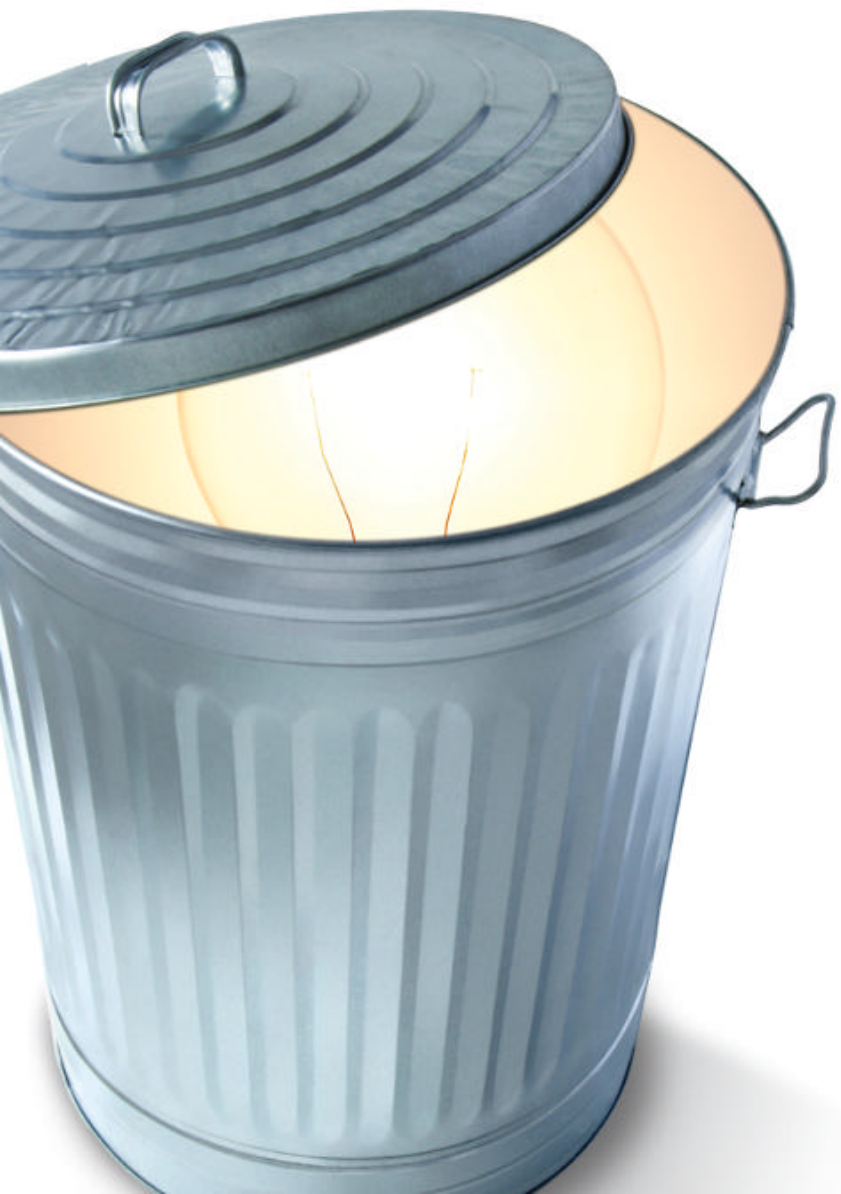


Reduce. Reuse. Recycle.

Rethink.

## Covanta Advantages

- **360,000 tons of metal recycled annually**
- **1,000,000 homes powered with electricity annually**
- **250 million tons of greenhouse gases avoided**



Thank  
you.